

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Petition for Rulemaking Regarding the Need for	)	
700 MHz Mobile Equipment to be Capable of	)	RM-11592
Operating on All Paired Commercial 700 MHz	)	
Frequency Blocks	)	

To: The Commission

**REPLY COMMENTS OF VULCAN SPECTRUM LLC**

Vulcan Spectrum LLC (“Vulcan”), by counsel, submits these Reply Comments to address certain Comments regarding the Petition for Rulemaking<sup>1</sup> filed by the 700 MHz Block A Good Faith Purchasers Alliance (the “Alliance”).<sup>2</sup> The Alliance asks the Commission to initiate a proceeding to consider rules requiring 700 MHz consumer devices to operate on all paired commercial 700 MHz frequency blocks and impose an immediate freeze on the authorization of mobile equipment that is not interoperable across all paired commercial 700 MHz frequencies.<sup>3</sup> Based on its review of the record, Vulcan agrees that the Commission should initiate a formal proceeding to elicit additional public input to determine what rules may be appropriate to resolve near-term and long-term consumer device compatibility and interference issues.

**Introduction**

Vulcan was the successful bidder for 700 MHz Block A licenses for the Seattle-Tacoma-Bremerton, WA and Portland-Salem, OR-WA Economic Areas.<sup>4</sup> Vulcan acquired its licenses for approximately \$113 million in Auction 73, the sixth highest amount spent on Block A

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<sup>1</sup> 700 MHz Block A Good Faith Purchasers Alliance, Petition for Rulemaking Regarding the Need for 700 MHz Mobile Equipment to be Capable of Operating on All Paired Commercial 700 MHz Frequency Blocks, RM-11592 (filed Sept. 29, 2009) (“Petition”).

<sup>2</sup> See Public Notice, “Wireless Telecommunications Bureau Seeks Comment on Petition for Rulemaking Regarding 700 MHz Band Mobile Equipment Design and Procurement Practices,” RM-11592, DA 10-278 (rel. Feb. 18, 2010).

<sup>3</sup> See Petition at 1-2.

<sup>4</sup> See Public Notice, “Auction of 700 MHz Band Closes,” DA 08-595, rel. March 20, 2008 (“Auction Close Notice”).

licenses and the tenth highest amount among all Auction 73 bidders. Vulcan purchased the spectrum recognizing that the 700 MHz band's superior propagation characteristics would enable efficient and affordable service to consumers residing in and traveling through the urban and rural communities that comprise its markets and anticipating that consumers would enjoy the benefits of roaming throughout the country.

The Alliance requests assurances from the Commission that 700 MHz subscribers will have handsets that can access all paired commercial Lower 700 MHz channels – Blocks A, B and C.<sup>5</sup> It asks the Commission to mandate interoperable handsets and to implement a freeze on authorizing new mobile 700 MHz equipment that does not provide multi-band interoperability.

The Alliance's concerns stem in part from the band classes established for Long Term Evolution ("LTE") by the 3<sup>rd</sup> Generation Partnership Project ("3GPP") process for operations in the Lower 700 MHz Band. After Auction 73 ended, at the recommendation of Motorola and with the support of AT&T and Verizon Wireless, the 3GPP established a new band class ("Band 17") that excludes Block A spectrum but preserves as a single band class Block C and Block B spectrum. Auction 73 resulted in Verizon purchasing its primary LTE block of spectrum in the Upper C Block and AT&T not purchasing any Block A spectrum.

Post-Auction 73 activity within 3GPP shifted from Band 12 (which includes Blocks A, B and C) to the establishment of Band 17 and essentially eliminated LTE manufacturer support for Band 12. Most other Auction 73 bidders that had purchased Block A licenses had a reasonable belief that Band 12 would continue to be the Band Class supported within LTE after Auction 73.

The Alliance states that AT&T and Verizon have issued RFPs to manufacturers for Band 17 equipment and, with their largest stakes in Lower Block B, Block C and Upper Block C spectrum, only AT&T and Verizon will have "economic and near term access to 700 MHz

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<sup>5</sup> Petition at ii.

equipment.”<sup>6</sup> They reason that these larger carriers will prioritize deployments into largest markets, so if equipment cannot operate on the Block A systems and those of the larger carriers, rural subscribers would be denied many of the benefits of 700 MHz service. As the Alliance cogently observes, “ironically, those living in rural areas where the benefits of 700 MHz service are most eagerly awaited (due to superior propagation for distance and penetration) are the ones least likely to have access to that spectrum”<sup>7</sup> – a result that would contravene Congressional and Commission policies designed to promote advanced wireless service to rural areas.<sup>8</sup>

Several commenters support the Alliance’s view that equipment compatibility should apply in this band,<sup>9</sup> and that without such compatibility, Block A licensees will have great difficulty finding necessary equipment to deploy LTE within their served areas, in providing affordable service to consumers and in generating vital roaming revenue.<sup>10</sup> Many commenters express concern that if AT&T and Verizon deploy only Band 17 equipment, there will be a lack of roaming service in areas served by small and regional carriers with Block A licenses.<sup>11</sup> Reinforcing these concerns is Verizon’s statement that it “does not plan to deploy its Lower Block A spectrum in the near term” – a message to manufacturers that the largest Block A licensee is not seeking equipment for expeditious deployment.

Those opposing the Alliance’s Petition object to mandated inclusion of Block A frequencies in consumer devices. Verizon contends that there are technical obstacles to designing multi-band devices, and such devices would impose additional cost and complexity to

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<sup>6</sup> *Id.* at 2.

<sup>7</sup> *Id.* at 4.

<sup>8</sup> See, e.g., 47 U.S.C. §309(j)(4)(C); *Reallocation and Service Rules for the 698-746 MHz Spectrum Band, (Television Channels 52-59)*, 17 FCC Rcd 1022, 1088 (2002) (“*Lower 700 MHz Service Rules Order*”).

<sup>9</sup> See Comments of Rural Telecommunications Group at 1-2; Comments of Triad 700, LLC (“Triad”) at 3.

<sup>10</sup> See, e.g., Comments of Triad at 5, 10-12; Comments of MetroPCS Communications, Inc. (“MetroPCS”) at 6-7; comments of Blooston Rural Carriers at 5.

<sup>11</sup> See Petition at 4. See also, e.g., Comments of National Telecommunications Cooperative Association at 3-4; Comments of United States Cellular Corporation at 8-9; Comments of Cox Wireless at 5; Comments of Triad at 5; Comments of MetroPCS at 6-7, 11.

operate across the requested channels.<sup>12</sup> AT&T claims that rules requiring handsets to include Block A frequencies could increase interference, reduce device capabilities and increase consumer prices for handsets.<sup>13</sup> The Consumer Electronics Association argues that the proposed rules may adversely affect device performance, power consumption and form factors.<sup>14</sup> Verizon, Motorola and AT&T further point to concerns about interference to Block A receivers from high-power Lower E Block and Channel 51 broadcast operations.<sup>15</sup>

In contrast to the Alliance and other commenters, the large carriers argue that Band 17 resulted from a fair 3GPP process and that the Alliance members did not object during that process.<sup>16</sup> Some commenters argue that grant of the Petition would halt or delay deployment of next-generation 700 MHz networks.<sup>17</sup> In short, these commenters caution against the Commission pre-empting the 3GPP standards process and argue that the primary purpose of the separate band class for Blocks B and C was to mitigate interference concerns.

In light of these significant differences concerning key technical, device and interference issues and their effect on service to rural areas and public safety communications, the Commission should initiate a proceeding to develop a more complete record so that it may better determine whether to adopt rules to encourage interoperability across the paired bands. Given the importance of rapid deployment of next-generation broadband solutions to urban and rural areas and the sums spent to this point for such deployments, the Commission should act quickly to help better assess what can be done to maximize nationwide broadband deployments and the potential for data roaming without compromising planned deployments of LTE networks.

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<sup>12</sup> See Comments of Verizon Wireless (“Verizon”) at 1, 5-7.

<sup>13</sup> See Comments of AT&T, Inc. (“AT&T”) at 8.

<sup>14</sup> See Comments of Consumer Electronics Association (“CEA”) at 2-3.

<sup>15</sup> See Comments of Verizon at 8; Comments of Motorola at 5; Comments of AT&T at 2, 5, 10.

<sup>16</sup> See Comments of Verizon at 4; Comments of AT&T at 6-7.

<sup>17</sup> See Comments of Verizon at 13; Comments of Qualcomm Incorporated (“Qualcomm”) at 1-2; Comments of Motorola at 1, 2-3, 8.

## Discussion

### I. The 3GPP Standards Did Not Change Until After the Auction Concluded.

The Alliance's concerns about interoperability arise from the 3GPP's establishment of Band 17 in the Lower 700 MHz Band. The record indicates that irrespective of the fairness or openness of the process, the 3GPP did not begin considering removal of Block A from Blocks B and C until *after* Auction 73 closed. No amount of due diligence prior to or during the auction could have reasonably anticipated the fundamental changes that 3GPP later made. These changes were unknown risks to bidders that acquired Block A spectrum at auction, many of whom bid in good faith with the expectation that the established band classes would not change and that traditional interoperability principles would continue to apply.

The time when Band 17 was introduced into the 3GPP process is significant. In November 2007, a 3GPP technical report identified the "Band 12" under consideration as including A-, B- and C-Block frequencies.<sup>18</sup> In December 2007, 3GPP issued the initial Release 8, which set forth technical standards for 700 MHz equipment and identified several categories of band classes.<sup>19</sup> The 700 MHz auction began January 24, 2008 and ended March 18, 2008.<sup>20</sup> A few weeks after the auction closed and AT&T and Verizon knew which licenses they would use for near-term LTE deployments, Motorola submitted a discussion paper to 3GPP "to evaluate the need for a new operating band [Band 17, originally Band 15] to support block B and block C in the lower 700 MHz band."<sup>21</sup> Motorola's proposal sought to address "co-existence issues" with high-power TV transmissions on Channel 51 and other transmissions on Block D and Block

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<sup>18</sup> See 3GPP TR 25.822 v 1.0.0 (2007-11), UMTS 700 MHz Work Item Technical Report (Release 8) at 6.1. ("Technical Report").

<sup>19</sup> See 3GPP TS 36.101 v. 8.0.0 (2007-12), Technical Specification Group Radio Access Network, Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception.

<sup>20</sup> See *Auction Close Notice*.

<sup>21</sup> See Motorola, TS 36.101: Lower 700 MHz Band 15, 3GPP TSG RAN WG4 (Radio) Meeting #47, Kansas City, April 5, 2008-April 9, 2008. Motorola proposed to modify the Band 12 frequencies identified in the Technical Report.

E.<sup>22</sup> AT&T supported the proposal.<sup>23</sup> In commenting on Motorola's proposal, however, Ericsson correctly observed that there "are indeed some technical benefits of introducing Band [17], but there are also drawbacks. There would be two duplexers covering part of the lower 700 MHz (it has also been proposed to limit Band 12 to A+B), which goes against economies of scales and may lead to market fragmentation."<sup>24</sup> Thus, even during the process, there were concerns that adoption of the new band would have material adverse market consequences.

Notwithstanding these prescient objections, in September 2008, the 3GPP modified Release 8, setting forth several categories of band classes – Band 12 (Lower A, B and C Blocks), Band 13 (Upper C Block), Band 14 (Upper D Block and Public Safety Broadband) and, for the first time, a Band 17 (Lower B and C Blocks). Band 17 detached Block A from Blocks B and C, so Band 17-based equipment could exclude Block A frequencies.

Significantly, this Release 8 revision was issued months *after* Auction 73 closed. The 3GPP decision to adopt Band 17, which decoupled Block A from the other paired commercial frequency blocks, was not a known risk for Auction 73 participants. Indeed, the Commission, consistent with statute, established an auction start date of January 24, 2008 to give bidders time "to develop business plans, assess market conditions, and evaluate the availability of equipment for new 700 MHz Band services."<sup>25</sup> Throughout Auction 73, there was no basis for bidders to believe that equipment availability would be altered as dramatically as the result of 3GPP Release 8, and no amount of due diligence could have foreseen the segregation of Block A. Even bidders that performed extensive due diligence and purchased Block A spectrum in

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<sup>22</sup> *Id.*

<sup>23</sup> Comments of AT&T at 2.

<sup>24</sup> Ericsson, "On the introduction of Band 15," TSG-RAN Working Group 4 (radio) meeting #47bis, Munich, Germany, 16-20 June, 2008.

<sup>25</sup> See "Auction of 700 MHz Band Licenses Scheduled for January 24, 2008," DA 07-4171, Report No. AUC-07-73 (rel. Oct. 5, 2007). See also 47 U.S.C. §309(j)(3)(E)(ii).

markets with no interference from Channel 51 broadcasters are now impaired from deploying wireless broadband LTE systems since Verizon and AT&T shifted their support from Band 12, driving LTE manufacturing away from Block A research, design and deployment. To the extent that some commenters claim that an absence of interoperability was a possibility that bidders should have considered during the auction, those commenters are mistaken.

## **II. The Commission Should Promote Interoperability and Encourage Innovative Solutions to Interference.**

Motorola and others cite potential interference issues as a basis for excluding Block A from the other paired 700 MHz frequencies in new LTE equipment. To the contrary, eliminating Block A frequencies from 700 MHz devices will discourage further innovation and preclude evolution of technological and marketplace solutions to address potential interference issues with Block A. A more complete record thus is needed to determine the status and timing of filtering and duplex development and the extent to which rules should be adopted.

In time, if incentives are in place, the industry will develop solutions to address Block A interference concerns. No commenter claims it is impossible to build equipment to support all of the paired commercial bands;<sup>26</sup> instead, commenters cite cost concerns, tradeoffs in handset designs, or potential delays to LTE deployments as grounds for excluding Block A frequencies from handsets.<sup>27</sup> Given the relatively brief life cycle of consumer handsets and the wireless industry's track record of innovation, the industry can, over time, develop new solutions to interference issues if there is demand from carriers for interoperable handsets or some other incentive for manufacturers to continue their efforts.

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<sup>26</sup> See Comments of MetroPCS at 19-20.

<sup>27</sup> See, e.g., Comments of Verizon at 1, 5-7, 10; Comments of Qualcomm at 3-4; Comments of CEA at 2-3; Comments of AT&T at 8.

Interference with broadcast Channel 51 need not be the basis for excluding Block A frequencies. As Motorola correctly states, the existence of Channel 51 television stations was well known prior to Auction 73.<sup>28</sup> It is, therefore, disingenuous for Motorola to also suggest that the existence of potential interference to such stations later justified segregating Block A from the other paired commercial blocks, a proposal it submitted to 3GPP only a few weeks after the auction closed.<sup>29</sup> Instead, Vulcan believes that any interference issues can be successfully managed and coordinated on a market-by-market basis in the few areas where full-power Channel 51 transmitters are located, consistent with existing Commission rules.<sup>30</sup> Filtering or channel changes can be narrowly tailored to specific circumstances such as the relative location and height of Channel 51 and 700 MHz transmitters.<sup>31</sup>

### **III. Commission Precedent Supports Adoption of Rules to Promote Interoperable Consumer Devices.**

On numerous occasions, the Commission has required interoperability to promote widespread adoption of consumer devices, in furtherance of its mandate to “encourage the larger and more effective use of radio in the public interest.”<sup>32</sup> Vulcan agrees that the Commission can properly exercise its authority to mandate that handsets using Lower 700 MHz frequencies be required to operate on A, B and C Block paired commercial channels.

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<sup>28</sup> Comments of Motorola at 10.

<sup>29</sup> See *id.* at 4. (“In the case of band class 17, which covers the lower 700 MHz B and C blocks, the identification was intended to address concerns about self interference, interference from other 700 MHz services, and interference to and from high power television broadcast operations in channel 51, all of which would be more severe in band class 12, which also includes the lower 700 MHz A block”) See also Comments of AT&T at 2.

<sup>30</sup> Commission rules provide that licensees may meet DTV protection requirements by 1) using specified geographic separation (either using the tables in the rules or D/U ratios), submitting an engineering study to justify the proposed separation or obtaining written concurrence from the DTV station. 47 C.F.R. § 27.60(b)(1). The FCC’s Consolidated Data Base System indicates that there are 27 fully licensed DTV broadcast stations on Channel 51 and fewer than 30 allotments for new TV stations. LPTV stations are authorized on a secondary basis and must accept interference from primary services such as 700 MHz Services. See *Lower 700 MHz Service Rules Order* at 1034-1035.

<sup>31</sup> For instance, a Channel 51 transmitter located on a remote mountaintop may present less potential for harmful interference than a transmitter located on a downtown building.

<sup>32</sup> 47 U.S.C. §303(g).



As the Alliance notes, the Commission has adopted compatibility requirements before. For example, in licensing analog cellular service in the early 1980s, the Commission promoted coverage across all markets and nationwide service capabilities.<sup>33</sup> To promote compatibility, the Commission required handsets to operate on both blocks of analog cellular spectrum, *i.e.*, the full range of available frequencies. The Commission's history of promoting consumer device compatibility also includes broadcast television and some of the same frequencies at issue here. Early in the history of television, the Commission implemented rules pursuant to the All Channel Receiver Act<sup>34</sup> to mandate that TV tuners operate both on UHF and VHF bands. At the time, UHF transmitters were not yet powerful enough, nor receivers sensitive enough, to reasonably allow for commercial success. The All Channel Receiver Act helped to make UHF viable against entrenched VHF despite the technical obstacles that were known at the time. More recently, the Commission adopted rules prohibiting importation and interstate transport of TV receivers that lacked digital tuner capability.<sup>35</sup> In addition, the Commission also adopted a single digital radio standard (IBOC) to "facilitate an efficient and orderly transition to digital radio."<sup>36</sup> These examples demonstrate that the Commission historically has adopted rules to require consumer devices to have reception capabilities that encourage compatibility and adoption of new services.

Verizon argues that the circumstances underlying requiring compatibility in analog cellular devices can be distinguished from a similar requirement in the 700 MHz service because

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<sup>33</sup> See *Cellular Communications Systems*, 86 FCC 2d 469, 482 (1981).

<sup>34</sup> The Commission has statutory "authority to require that [a device] designed to receive television pictures broadcast simultaneously with sound be capable of adequately receiving all frequencies allocated by the Commission to television broadcasting." 47 U.S.C. §303(s).

<sup>35</sup> See 47 C.F.R. §15.117(i).

<sup>36</sup> *Digital Audio Broadcasting Systems And Their Impact on the Terrestrial Radio Broadcast Service*, First Report and Order, 17 FCC Rcd 19990, 20006 (2002).

the cellular rules concerned promotion of new services via “consistent standards.”<sup>37</sup> To be sure, promoting “consistent standards” should be a hallmark of Commission policy that should apply equally across the paired 700 MHz blocks. That the cellular interoperability rule was in place before free cellular licenses were handed out is irrelevant, notwithstanding Verizon’s contrary claims. Auction 73 participants had a valid, reasonable expectation – based on then-designated 3GPP band classes and prior Commission decisions – that equipment designed to work in the paired 700 MHz band would not exclude Block A, irrespective of its technical challenges.<sup>38</sup> Verizon’s Administrative Procedure Act challenges to the Petition are misguided. The Petition requests a rulemaking proceeding, not the immediate adoption of rules. A formal rulemaking proceeding ensures that the Commission has a comprehensive record upon which to base its decisions on this matter, a position Vulcan endorses.

### Conclusion

For the above-stated reasons, Vulcan supports initiation of a rulemaking proceeding so that a more complete record can be developed regarding the issues presented in this proceeding.

Respectfully submitted,

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April 30, 2010

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<sup>37</sup> *Id.* at 20.

<sup>38</sup> *See, e.g.,* Comments of MetroPCS (“Block A bidders like MetroPCS acquired 700 MHz licenses . . . in the good faith belief that the 700 MHz band would conform to the traditional model of full interoperability”).

## **CERTIFICATE OF SERVICE**

I, Kenn Wolin, a paralegal at the law firm of Rini Coran, PC, hereby certify that I have caused copies of the foregoing "Reply Comments of Vulcan Spectrum LLC" to be sent by United States Postal Service, first class mail, postage prepaid (except as noted), this 30<sup>th</sup> day of April, 2010 to:

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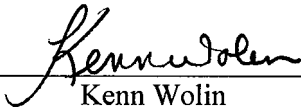
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